REMARKS

Examiner has rejected claims 12-24. Claims 12-21 have been rejected under section 103(a) as being unpatentable over Teder et al (US 5,828,659) in view of Yamamoto (US 6,477,183). Examiner has rejected claims 22-24 under section 112, first paragraph, otherwise, Examiner would allow claims 22-24 if rewritten to overcome the rejection under section 112.

Applicants have reviewed the cited references and disagree with the Examiner in rejecting claims 12-21. Applicants believe the Examiner has not fully appreciated various aspects of the claimed invention. In this regard, Applicants have decided to re-write the claims in the form of claims 22-43, which clearly set out the claimed invention, and cancel claims 12-21 without prejudice. Applicants believe no new matter has been added.

While rejecting claims 12-21, Examiner notes "communicating said downlink data frame time offset information to the mobile station" is not disclosed by Teder, but it is disclosed by Yamamoto, while citing col. 5, lines 15-20 of Yamamoto. Examiner further notes the motivation for using this capability [disclosed by Yamamoto] facilitates adjustments of the delay factor. Applicants believe the Examiner have not fully appreciated various aspects of the claimed invention because the downlink data frame time offsets are associated with the transmissions from the base stations. The time offset disclosed by Yamamoto is a time offset between reception and transmission from the mobile station (time offsets between MG1 and MG4/MG5). Therefore, Yamamoto does not disclose "communicating said downlink data frame time offset information to the mobile station", for which Teder, as Examiner notes, fails to disclose. Therefore, the claimed invention is not obvious from a combination of Teder and Yamamoto.

The claimed invention would eliminate any ambiguity for the mobile station about the downlink time offsets chosen by the base stations to transmit data frames from each one of the base stations, so as to effect a proper soft handoff operation. The handoff operation is effective when corresponding symbols transmitted from each base station are combined. While being described in the specification of the application, the data symbols transmitted from a base station

are communicated in a number of chips per symbol. The number of chips may range from 4 to 512 chips. Since the number of chips per symbol is more than one, the corresponding symbols received from a first and second base stations may arrive in accordance with a time offset that can be a different number of chips.

Scenario A: While not considering the uncertainty with respect to the propagation delay between each base station and the mobile station, the downlink time offset may happen to be chosen such that the same corresponding symbols arrive at the mobile station at exactly the same chip time. In this case, there is no problem at the mobile station. The mobile station would combine the corresponding symbols for the handoff operation. Moreover, the symbols arriving closest in time may be combined.

Scenario B: Again while not considering the uncertainty with respect to the propagation delay between each base station and the mobile station, if the chosen time offset allows a symbol transmitted from the first base station to arrive at a number of chips located at the middle of the corresponding data symbol transmitted from the second base station, the mobile station aligning the beginning of the data symbols received from the base stations would be confused with respect to the closest symbol as to whether to combine the received symbol from the first base station with the symbol received from the second base station having a beginning at a chip time preceding the middle chip time or the next symbol having a beginning at a chip time after the middle chip time. In this case, there would be two symbols equally close to the symbol received from the first base station. Therefore, there is an ambiguity at the mobile station with respect to identifying corresponding symbols for soft handoff operation.

Having described these two examples, now considering the uncertainty associated with the propagation delay between the base stations and the mobile station, the ambiguity at the mobile station is further increased. Therefore, there is an ambiguity at the mobile station. For this reason, the downlink transmission time offsets need to be communicated to the mobile station.

Additionally, the time offset chosen by the base stations is in increments of a number of chips, as claimed in the newly submitted claims. The specification of the application indicates for example the time offset to be 256 chips increments. Considering the time frame boundaries at the mobile station, the beginning of a data frame from one base station may be right in the middle of the data frame from the other base station, causing an ambiguity for the mobile station to decide which data frame to be the closest data frame for the soft handoff operation. Therefore, the base station needs to inform the mobile station which downlink time frame offset has been selected.

Teder although recognizing a problem of transmitting two signals to a mobile station so as to arrive at the same time, the proposed solution does not take into account the ambiguity that is present at the mobile station with respect to the downlink time offsets from the two base stations. Teder attempts to solve the problem without any pointer for taking into consideration an ambiguity that might be present at the mobile station. Furthermore, Teder at no place contains pointers to the solution as provided by the claimed invention. As stated in the specification of the application, the mobile station can not rely on the arrival timing of the symbols from each base station (cell) to determine which symbols should be combined. Teder has failed to recognize the difficulties at the mobile station, and therefore, it contains no pointers to a solution as provided by the claimed invention.

Yamamoto is concerned with a problem of receiving a signal from a mobile station at two different base stations. The mobile station transmits two identical signals (MG4 and MG5) to two different base stations after receiving signal MG1, with a time offset. One of the base stations (element 22) would recognize receiving MG4 at the other base station (element 21) as the message MG5. Yamamoto is not concerned with transmitting downlink transmission time offsets, which is need to be communicated to the mobile station to remove ambiguity at the mobile station as claimed. Therefore, Yamamoto is not only addressing the same problem but also the solution provided is not applicable to the problem for which is being solved by the claimed invention.